National Aeronautics and
Space Administration

REVISION 10
EFFECTIVE DATE: 12/22/2007

STATEMENT OF WORK (SOW)

FOR
MAINTENANCE AND REPAIRS
TO

NASA TRANSPORTATION BARGE
PEARL RIVER

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A. STATEMENT OF WORK

These specifications and accompanying plans set forth the requirements and describe the work to be accomplished to the NASA barge PEARL RIVER. When complete, the barge PEARL RIVER will be ready for operation by NASA to transport the Ares I Upper Stage, test hardware, and related support equipment on inland and intracoastal waterways.

Major items of work contained in these specifications and drawings include:

1. Dry-docking and inspection including:

    a. Dry-docking survey
    b. Audio gauge
    c. Tank testing

2. Maintenance including:

    a. Cleaning and painting
    b. Hull anode renewal
    c. Anchor, anchor chain, and towing chain renewal

3. Overhaul, repairs, modifications, and alterations including:

    a. Valves, as specified
    b. Tank top repair/replacement
    c. Installation of new Marine Sanitation Device
    d. Ballast system repairs
    e. Fire system repairs

B. INTENT

It is the intent of these specifications and accompanying drawings that the contractor shall satisfactorily perform all work and details connected therewith and provide all materials, equipment, facilities, and services, unless otherwise specified, required to receive, protect, modify, overhaul, test, clean, paint, and deliver afloat the NASA barge PEARL RIVER complete in all respects and in full compliance with these specifications and accompanying drawings.

It is the intent also that the contractor use the best current marine standards and practices in accomplishing these work requirements. The intent and spirit of these specifications is that the contractor shall deliver the vessel to the owner in a seaworthy and safe condition ready for the intended service. The NASA barge

PEARL RIVER does not require ABS certification. Even so, the contractor shall be responsible to meet all ABS and USCG requirements for the work requirements as outlined in this Statement of Work.

The contractor shall not be relieved from fulfilling the full requirements of these specifications or of the responsibility for producing satisfactory results, or of properly performing any work by any of the following:

1. Differences of nomenclature or methods of obtaining results used in these specifications or by the contractor.

2. Mistakes in description of details which, if not corrected, would interfere with the proper performance of the items involved.

3. Inadvertent misplacement, inclusion, or omission of any word, letter, or punctuation mark in these specifications.

In the event that the contractor believes that there is any ambiguity, the contractor shall request a clarification in lieu of proceeding on a false or uncertain premise.

The contractor is responsible for installing or providing stowage of all equipment required by these specifications, whether furnished by the owner or by the contractor.

C. DEFINITIONS

Whenever the term “Government” or “Owner” is used, it will mean the National Aeronautics and Space Administration (NASA) and/or its authorized representatives. The Contracting Officer’s Technical Representative (C.O.T.R.), or C.O.T.R. directed representative(s), will be on-site and available for the duration of the work period for the work specified herein.

Whenever the term “approved”, “required”, “necessary”, “satisfactory”, or “as directed” is used, the decision of the owner is intended.

Whenever the expression “furnished”, “installed”, “fit”, or “provide” is used with respect to any item supplied by the contractor, it will be understood to mean “furnish, install, and connect up complete and in proper order” unless otherwise clearly indicated.

Where the word “ton” is used, it will be understood to mean the long ton of 2240 pounds unless otherwise indicated.

The general requirements of these specifications shall apply to all sections of these specifications and are applicable to any subsequent addenda even though not specifically stated therein.

D. MATERIALS AND WORKMANSHIP

Unless otherwise specified, all materials required for the work under contract shall be furnished by the contractor. All such materials shall be new and of the best commercial marine quality, conforming to the latest requirements of the various regulatory bodies. The contractor shall select all materials and methods with a view to their workability, ease of replacement, repair, and minimum maintenance.

All materials, equipment, and fittings furnished by the contractor shall be of recognized manufacture and of proven design and quality for the intended service. Certain proprietary designations are given in these specifications to readily establish the owner's requirements.

In those instances where the phrase "or equal" is included, the owner's preference is indicated and, should the contractor desire to substitute an alternate choice, the contractor shall promptly submit data substantiating his claim for equality of design, construction, performance, and maintenance. In all such cases, however, the owner reserves the right of final decision, and his specific written approval must be obtained before the contractor proceeds with any substitution.

All materials, equipment, etc., intended for the vessel in any form shall be adequately stowed and protected by the contractor while in his possession, with due consideration being given to the nature of the items. Generally, all material, equipment, etc., other than structural steel, shall be warehoused and protected from the weather.

All workmanship of the contractor and any of his subcontractors shall be first-class in all respects and must be performed to the complete satisfaction of the owner. Any unsatisfactory work, whether partially or entirely finished, shall be satisfactorily corrected by the contractor, at the contractor's expense.

If special tools are needed for proper maintenance of any contractor-furnished equipment, a complete set shall be provided.

E. WELDING

All welding shall be executed in accordance with the approved plans, to the satisfaction of the Contracting Officer's Technical Representative (C.O.T.R.) and in accordance with the requirements of the American Bureau of Shipping rules.

Particular care shall be taken in the welding sequences to minimize locked-up stresses which might cause inherent weakness in the structure.

Prior to beginning erection, an approved schedule of welding sequences shall be forwarded to the C.O.T.R. The C.O.T.R. shall be notified promptly of deviations from this schedule.

Welding will not be permitted as a remedy for poor workmanship.

Steel beams, brackets, stiffeners, etc., exposed to the weather shall be seal welded or voids filled with an approved compound to prevent rust streaks.

Should visual inspection show that thickness, surface contour, or continuity of any weld in the main deck or shell plating is not in accordance with approved working plans, or that radiographic internal examination and testing of any weld indicates defects of an unacceptable nature as determined by standards of the Classification Society, the weld shall be carefully cut out over the full extent of the defect and the quality of the final re-weld determined by sample radiograph.

F. INSPECTION

All work performed by the contractor and his subcontractors shall be done under the inspection and subject to the approval of the C.O.T.R., who, or his representative, shall be afforded every facility for inspecting the materials and workmanship entering into all work. In addition, all work performed may be done under the inspection and subject to the approval of ABS, at the direction of the C.O.T.R., though ABS certification is not required for this vessel.

The C.O.T.R. shall be furnished with an adequately maintained office, conveniently located in the contractor's yard with necessary facilities, such as desks with chairs, telephones for unlimited local service and computer network access for connection to the Internet, for the duration of the work at the contractor's yard.

All the work being accomplished under the contract shall be open to inspection at all sites of work, including subcontractor's plants, at all proper times. It will be the contractor's responsibility to notify the C.O.T.R. when the inspections are to be made by the regulatory agencies (if applicable) so that the C.O.T.R. may witness the test or inspection if he so desires. The C.O.T.R., or representative, is to be fully advised in every particular as to the contractor's program of work and methods which the contractor intends to pursue, in order that no significant operation is performed without prior notice in sufficient time to allow adequate inspection so that the interest of the C.O.T.R. may be adequately protected.

Copies of the latest revisions of all drawings, sketches, vendor's plans, schedules, and all other data shall be promptly supplied to the owner's representatives as required for inspection purposes. The C.O.T.R. will have the authority to reject any material or workmanship whenever found defective, unsuitable, non-conforming with the best shipbuilding practice, or not in accordance with the contract plans and specifications or with approved working plans. Satisfactory correction and/or replacement of any rejected items is to be accomplished by the contractor at the contractor's expense. The contractor shall notify the C.O.T.R. at least 10 (ten) days prior to the anticipated date of completion of all work specified in the contract. Upon completion of the work, the C.O.T.R. shall proceed with final inspection and shall complete such inspection as promptly as practicable. The time required for such inspection and making of any corrections as a result thereof shall be included in the contract performance time.

When all work has been satisfactorily completed at the contractor's facility, the contractor and the C.O.T.R. shall make a complete physical inspection and inventory of the barge. A "punch list" of deficiencies will be developed and presented to the contractor for corrective action. All corrective action necessary to eliminate the "punch list" shall be completed at the contractor's facility. The contractor shall give the C.O.T.R. three (3) days notice prior to the desired date of re-inspection.

G. CHANGES AND EXTRAS

No departures from the requirements of this specification and accompanying drawings shall be made except upon written approval from the C.O.T.R., who reserves the right to make reasonable changes provided they are arranged for before work has been started or material ordered and provided that the work involved in such changes will in no way increase the cost or delay the delivery of the completed vessel, unless an extension of time is granted covering the work involved and the difference in cost is agreed upon in writing.

The Government reserves the right to cancel any item or items it so desires during the performance of the work. If work has commended on the item so cancelled, an allowance will be made for the amount of work accomplished. The credit for such cancelled items shall be mutually agreed upon by the C.O.T.R. and the contractor. This amount shall be deducted from the contract price.

Any additional material and/or labor required as a result of the PEARL RIVER barge survey and inspection, systems checkout, Government requirements, or other inspections by the C.O.T.R. not specifically covered in these specifications or the contract, but required to make the vessel seaworthy shall be treated as an additional item. The cost of these additional items, if any, shall be agreed upon in writing before commencing this work.

The contractor shall submit unit price information for indefinite quantity repairs and "extras" as outlined in the "Indefinite Quantity" clause of this contract.

H. CONTRACT FURNISHED DRAWINGS

The following listed drawings are furnished as reference and/or information only:

1. 30A90884	Arrangement of Machinery
2. 30A90887	Fire Pumps Foundation
3. 30A90893	Piping Modification, Fire System
4. 30A90894	Piping Modification, Sanitary Water System
5. 30A90895	Piping Modification, Potable Water System
6. 30A92025	Tank Arrangement
7. 30A92027	Fuel Oil Piping
8. 90M01737	Foundation and Bracket Assemblies
9. 90M01740	Deck Arrangement and Inboard-Outboard Profile
10. 90M02047	Fresh Water Tank
11. 90M02055	Fresh Water Piping Installation
12. YF614-S0700-480722	Docking Plan, Pearl River

Prints of any of the conversion drawings or other construction drawings of the barge PEARL RIVER will be furnished to the successful bidder at his request.

***NOTE**: The supplied drawings are not 100% accurate. A pre-award conference will be conducted to address all questions and inquiries from potential bidders. The PEARL RIVER barge is available at the Stennis Space Center (SSC), MS.*

SECTION II DETAILED REQUIREMENTS

A. CONTRACTOR FURNISHED FACILITIES AND SERVICES

The contractor shall provide all necessary plant facilities, engineering, labor, services, material, equipment, fittings, tools, appliances, staging, transportation, salt and fresh water, including fresh water ballast, power, lighting, heat, air, steam, crane service, communication, mooring lines, line handling, wharfage, dry-docking and shifting of the vessel or its fittings, stores, fuel, outfit, and equipment for carrying out the work specified or implied. Any damage or loss resulting therefrom shall be made good by the contractor at the contractor's expense. Should any portion of the vessel's structure, housing, fixtures, or equipment require alteration or removal in order to carry out the work or any part thereof, even though not specifically mentioned herein, the contractor shall make such alteration or removal without additional cost to the owner.

Whether or not specified in each case throughout the entire specification, the contractor shall provide the services of manufacturer's representatives for making adjustments and performing other highly specialized work. The installation of either owner-furnished or contractor-furnished equipment shall be made by the contractor under the supervision of authorized representatives of the respective equipment manufacturers and all final adjustments and checking of all manufacturers shall be borne by the contractor for both owner and contractor-furnished equipment.

The contractor shall take all reasonable precautions to protect the vessel in every way from fire and pilferage and to secure the safety of the barge. The contractor shall maintain an effective system of inspection over the activities of welders, burners, riveters, painters, and all other workmen. The contractor shall furnish fire watch and all shore fire lines, portable extinguishers, etc., required for adequate fire protection. The contractor shall maintain guards to protect the ship's and the owner's equipment, stores, etc., from theft or pilferage aboard and ashore. The contractor shall be responsible for the replacement of any loss before delivery.

During the progress of work, all parts of the barge shall be kept in a clean and sanitary condition. All accumulated chips, shavings, refuse, dirt, garbage, and water shall be removed promptly.

The contractor shall at all times, insofar as conditions of the work will permit, keep the openings of the vessel closed against the weather. The contractor shall keep all pipe lines drained, including fixtures, pumps, traps, etc., throughout the vessel to avoid damaging piping fixtures, etc., by corrosion or freezing. If it is not practical to keep items drained, the contractor shall furnish heat as needed. The contractor shall attend to all sea connections and pump the bilges regularly. Any damage suffered through the contractor's neglect to comply fully with these

requirements shall be at the contractor's expense. Any of the existing parts of the vessel which are removed or damaged incidental to the work under contract shall be satisfactorily replaced or renewed at the contractor's expense.

The contractor's procedure and methods of construction may, in general, be of his own choosing, provided they follow the best general practice and are calculated to secure results which will satisfy the requirements of these specifications and the inspection of the work.

The vessel shall be delivered under the requisite formalities and as may be prescribed by the owner, and it shall be in a first-class condition with the holds, tanks, and all other spaces and systems thoroughly clean and free of all dirt, fuel, water, debris, and foreign substances. Any ballasting required shall be done with freshwater.

B. INVENTORY

The Government will remove from the barge PEARL RIVER prior to delivery all loose items of outfitting, tie down gear, etc. All galley equipment, all tools in the machinery spaces, and all loose items of outfitting in the quarters area will also be removed. The contractor shall be responsible for the remainder of the vessel's stores and equipment and shall check this inventory prior to receiving the vessel in the contractor's yard.

C. GAS FREEING

The contractor shall, at his own expense and before the start of any hot work, make a gas-free inspection of the compartments of the vessel which will be affected by the hot work to be undertaken and shall perform tank cleaning and gas freeing as may be necessary to obtain Gas-Free Certificates (SAFE FOR MAN AND FIRE).

Following issuance of the initial certificate, as stated above, the contractor shall keep all parts of the vessel gas-free during the period of the contractor's work. The delivery of the certificate to the C.O.T.R. shall not relieve the contractor of the responsibility for the continued gas-free condition of the vessel or any of its parts.

The contractor shall obtain and furnish to the C.O.T.R. two (2) copies of all gas-free certificates issued by the certified chemist.

The contractor shall gauge, meter, and remove all fuel from the vessel, clean, and gas-free as may be necessary for the prescribed work. Upon completion of the

work, the contractor shall furnish and deliver a quantity of fuel equal to the grade and quality removed and suitable for use in the diesel generators.

D. DRY-DOCKING

The contractor shall provide suitable and adequate dry-dock facilities for the purpose of properly accomplishing all underwater work, cleaning, and painting. Necessary shifting of the vessel on dock in order to paint and attend those parts of the hull inaccessible due to blocks shall be made as directed by the C.O.T.R.

Should the vessel be grounded, or the underwater portion of the hull be suspiciously damaged during the contract period, the contractor shall dry-dock the vessel again for examination and perform the necessary repairs at the contractor's expense.

The barge will be delivered with approximately 12-24 inches of water in each ballast tank. The contractor shall be required to furnish necessary labor and equipment to remove this standing water in preparation for work performed in this specification.

NOTE: *Corrosion preventative coatings have been applied in the ballast tanks. Any remaining ballast water shall be properly characterized prior to removal and disposal.*

E. SERVICES AND INFORMATION

Copies of any contractor produced drawings, diagrams, sketches, schedules, bills of material, calculations, data, principal purchase specifications, vendor's specifications and plans, instruction books, and copies of official correspondence relating to them, shall be furnished to the C.O.T.R. in adequate time and quantity to enable one copy to be promptly returned to the contractor with approval and/or comments.

Four copies of the contractor's purchase orders covering all new equipment, fittings, etc., shall be furnished to the C.O.T.R. within 30 days after completion.

The contractor shall also provide four copies of vendor's approved plans, certified outline, dimensional drawings, description literature, vendor's operating and maintenance manuals, parts books, etc., for all equipment installed on the barge PEARL RIVER within 30 days after completion.

The contractor shall furnish the original and four copies of all contractor produced drawings to the Government within 30 days after completion.

F. HULL ANODES RENEWAL

The contractor shall remove all existing anodes from the hull. The contractor shall furnish and install sixty-two (62) 20# aluminum anodes (weld type) to the exterior of the hull and one (1) 10# aluminum anode in each of the port and starboard sea chests. The location of each anode will be as designated by the C.O.T.R.

G. AUDIO GAUGING

The contractor shall provide the equipment and services necessary to take and record thickness readings of the side, bottom, tank top, and bulkhead plating, water-tight transverse and longitudinal bulkheads, non-tight transverse and longitudinal bulkheads, and main deck. The location of the readings shall be as follows:

a. **Exterior hull plating** – readings are dictated for different zones. These are as follows.

   1. ZONE 1: Bottom plate. Readings shall be taken on a twelve (12) foot grid pattern. Each SKEG bottom plate shall have a minimum of five (5) equally spaced longitudinal readings.

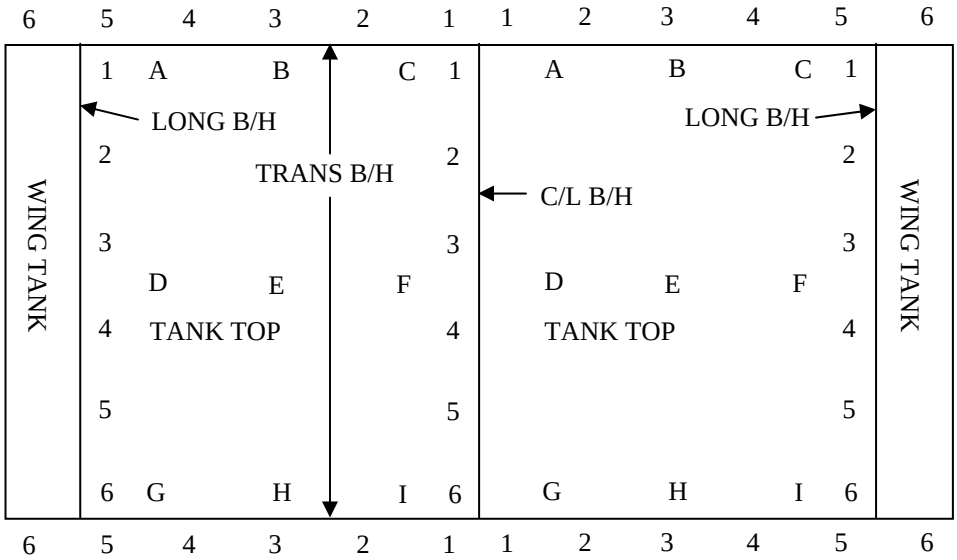
   2. ZONE 2: Side shell plate. Readings shall be taken along a belt extending around the port and starboard sides at the seven and one-half (7.5) feet water-line. Readings shall be taken at one and one-half (1.5) feet each side of every frame between frames 1 – 27. Readings forward of frame 11 and aft of frame 23 shall be taken every three (3) feet. Readings shall also be taken along a second belt at the three (3) feet water-line, port and starboard, forward of frame 11. Reading on this belt shall also be taken every three (3) feet. Refer to Figure 4 at the end of SECTION II.

b. **Interior bulkheads (above tank top level)** –readings at two (2) belts that are six (6) inches and five (5) feet above tank top level, spaced every eight (8) feet. See figure below (numbers).

c. **Interior bulkheads (below tank top level)** – readings at mid depth of inner bottom (1.5 feet below tank top), spaced every eight (8) feet. See figure below (numbers).

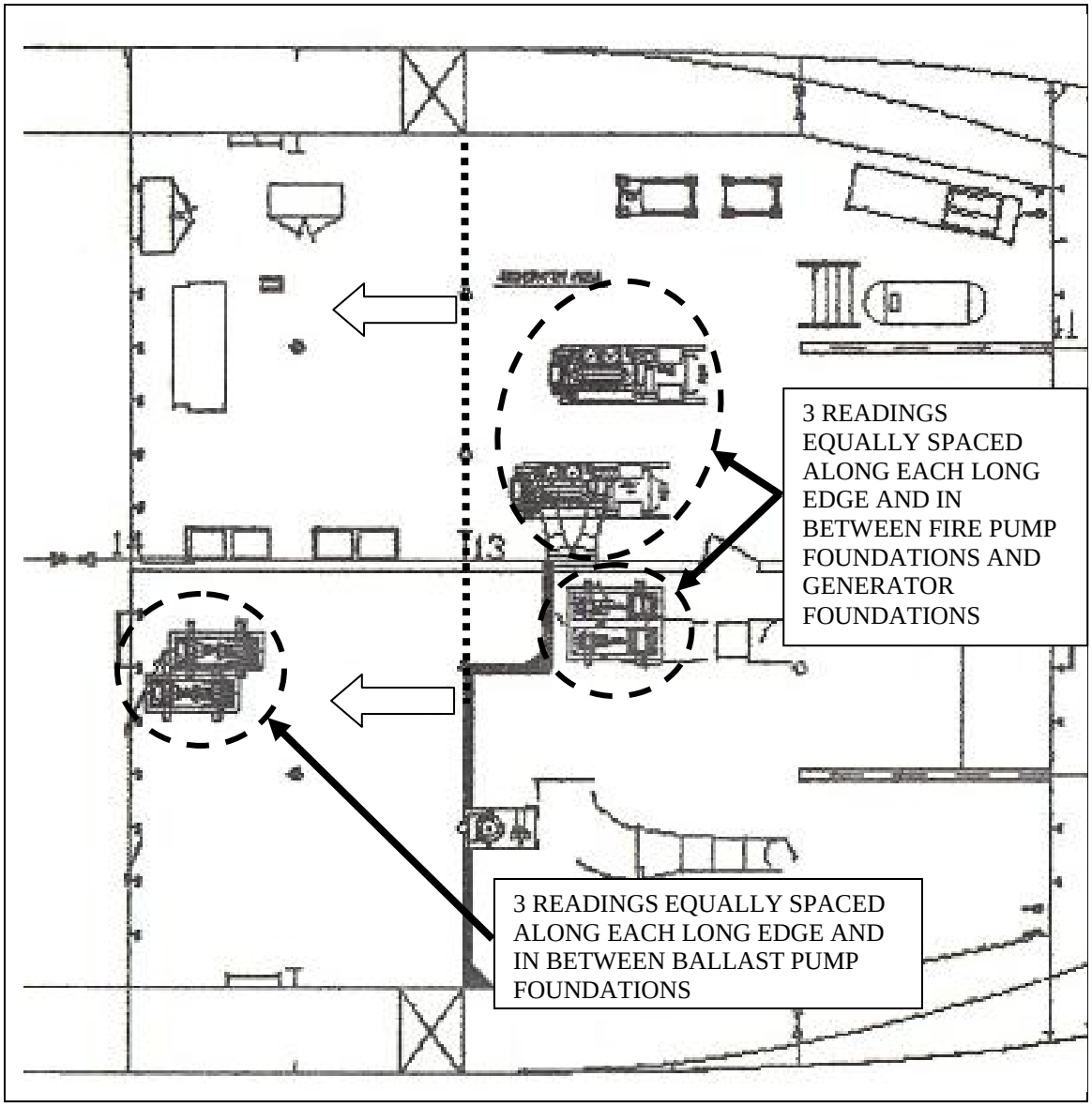
d. **Tank top** – eighteen (18) readings per bay, equally spaced; total of five (5) bays. See figure below (letters).

NOTE: *Tank top for No. 2 W-IB shall require additional readings as detailed in part f.*

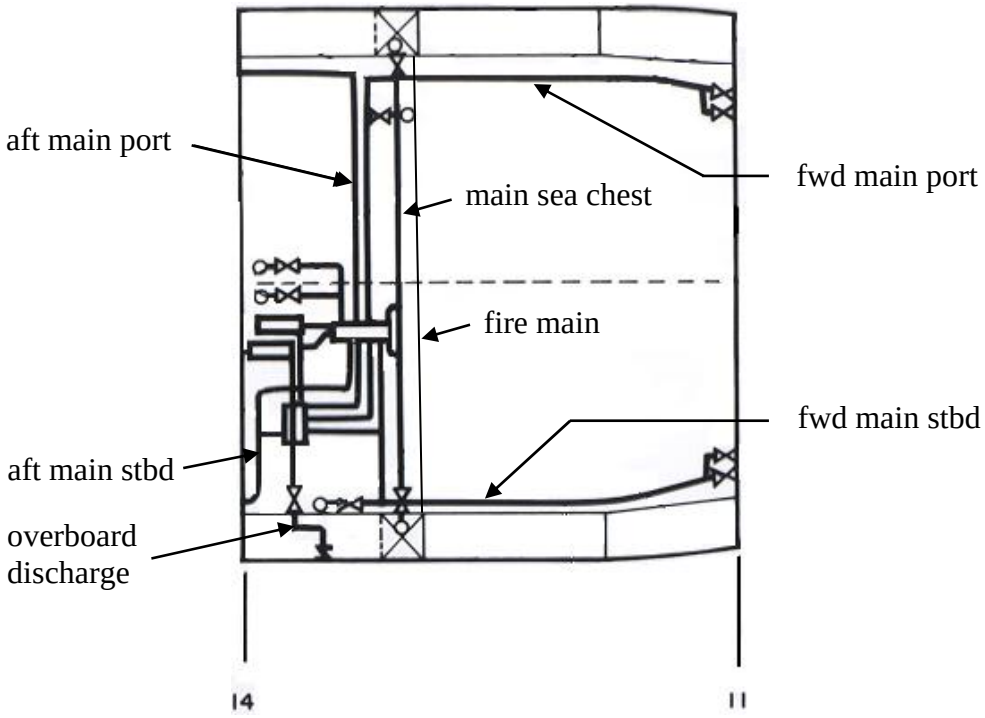


e. **Main deck** – twelve (12) foot grid pattern.

f. **No. 2 W-IB tank top, P/S** – Known wastage exists on No. 2 tank top aft of frame 13, near frame 14, at the aft end of the generator and pump rooms. Additional readings shall be taken to determine the extent of repair necessary (See TANK TESTING AND REPAIRS, SECTION II, Part J). See figure below. Raised flooring elements must be removed for proper gauging. Additional readings (up to fifty [50] readings) may be required as directed by the C.O.T.R. as evaluated conditions warrant.



g. **Ballast piping** – Piping wall thicknesses shall be taken in the generator and pump rooms every 6-10 feet for each of the four (4) ballast mains (P/S aft main and P/S fwd main). Readings shall also be taken along main and auxiliary sea chest suction piping, and associated ballast piping between the suction and discharge manifolds, as well as the ballast discharge overboard piping. Readings shall be taken every 6-10 feet or as directed by the C.O.T.R. for shorter runs. There are approximately 250 feet of ballast piping to evaluate. See figure below.



In addition to the areas detailed in parts a-g above, the contractor shall be required to gauge framing, girders, stanchions, piping wall thicknesses, deck plating, and/or other internal reinforcing members as required by the C.O.T.R. to evaluate potential and/or noted wastage. These readings shall be taken in approximately 50 locations.

All repairs to any tank bulkheads, ballast piping, deck plating, hull plating, and structural members required as a result of this evaluation shall be done so with the approval of the C.O.T.R., and shall be treated as an "extra" per the Indefinite Quantity clause of this contract.

NOTE: *Prior inspection has revealed many pits in the bottom plating which require weld repair. The port and starboard bilge strakes have a doubler plate. This doubler plate will require a cap weld at the weld butts.*

H. VALVE REPLACEMENT AND REPAIR

All sea valves, sea chest vent valves, sea chest blowout valves, and overboard discharge valves shall be opened up, cleaned, inspected, and overhauled. Each valve shall be placed in first-class seaworthy and serviceable condition. All broken, missing, or otherwise defective minor parts shall be repaired and/or renewed, using material similar to original when new.

All valve seats and discs shall be reseated and ground into a tight seat. All valve stems shall be freed-up, cleaned, and repacked. All Bonnet gaskets shall be

renewed same as original. Valve reach rods shall be proven in good operating order.

NOTE: *Inspection has revealed that one No. 5 port ballast tank (aft trim tank) reach rod is non-functional.*

All shell fastenings securing the various valves and their appurtenances, such as pads, nipples, spuds, spool pieces, studs, flanges, etc., shall be hammer-tested and examined. Any defects found shall be put in good working order.

Upon completion of all stipulated repairs, inspections, and acceptance of the above work, close up all valves ready for service, using all new bolting and jointing material as required.

All work shall be performed to meet inspection acceptance by the C.O.T.R.

The following list of valves is for guidance only and is not limited thereto:

F/N's	QTY	WORK	SIZE	TYPE	SERVICE
1-3	3*	REPLACE	1 ½"	Rising stem, gate	Ballast
4,5	2	REPLACE	4"	Rising stem, stop check	Ballast
6-13	8	REPLACE	4"	Rising stem, gate (angle)	Ballast
14-23	10	REPLACE	4"	Butterfly	Ballast
24,25	2	REPLACE	3"	Butterfly, stem extension	Generator cooling, (freshwater and overboard)
26	1	REPLACE	3"	Rising stem, gate	Generator cooling, freshwater
27	1	REPAIR/RENEW	3"	Rising stem, gate	Generator cooling, overboard
28,29	2	REPAIR/RENEW	6"	Rising stem, gate	Sea chest, main
30,31	2	REPAIR/RENEW	4"	Rising stem, gate	Sea chest, aux.
32,33	2	REPAIR/RENEW	3"	Rising stem, gate	Sanitary System
34,35	2	REPAIR/RENEW	1 ¼"	Rising stem, gate (angle)	Sea chest, vent
36,37	2	REPAIR/RENEW	¾"	Rising stem, globe	Sea chest, vent
38	1	REPAIR/RENEW	4"	Rising stem, globe	Ballast overboard
39	1	REPAIR/RENEW	4"	Flanged check	Ballast overboard
40,41	2	REPAIR/RENEW	4"	Rising stem, stop check	Bilge / ballast
42-53	12	REPAIR/RENEW	4"	Rising stem, gate	Suction manifold
54-61	8	REPAIR/RENEW	4"	Rising stem, gate	Discharge manifold

* Undetermined configuration. Listed information is anticipated configuration.

Total Valves: 61
For Replacement: 26
For Repair: 35

Find numbers can be found in Figure 1 located at the end of SECTION II.

In addition, the contractor shall furnish labor and materials to open and clean each of the two (2) sea chests. The strainer plates shall be removed and replaced/renewed with new bolting and jointing materials of similar design and construction.

Any valves designated for repair that are subsequently required to be replaced shall be done so with the approval of the C.O.T.R., and shall be treated as an "extra" per the Indefinite Quantity clause of this contract.

I. SKEG TESTING

Both port and starboard skegs, located aft, shall be tested to prove all compartments watertight. After testing, the contractor shall flush the skegs with fresh water. Coat the interior of the skegs with Ashland, Inc. Magnakote using fresh water to coat by floating. All necessary screwed fittings shall be permanently installed as required to fill and vent all watertight compartments.

Any repairs required to the SKEGS shall be done so with the approval of the C.O.T.R., and shall be treated as an "extra" per the Indefinite Quantity clause of this contract.

J. TANK TESTING AND REPAIRS

The contractor shall test and inspect all bulkheads in way of all interior voids, ballast tanks, cofferdams, and other spaces. Testing is to encompass air and hydrostatic loading of necessary compartments and soap application to bulkheads to prove oil-tight and/or water-tight integrity of all tanks to the satisfaction of the C.O.T.R.

Inspections have revealed that possible leakage and known wastage exist in the following tanks:

1. No. 2 Port Wing-Inner Bottom /Fresh water diesel cooling system
2. No. 2 Starboard Wing-Inner Bottom / Ballast
3. Leakage between No. 2 Port Wing-Inner Bottom and No. 3 Port Wing-Inner Bottom

Wastage exists on the tank tops, port and starboard sides, aft of frame 13. The contractor and C.O.T.R. shall inspect and determine the necessary repairs. (Reference SECTON II, P. MISCELLANEOUS REPAIRS, part 8 and part 9, and SECTION II, G. AUDIO GAUGING, part f)

The contractor shall repair the above tanks (including new ballast piping) prior to final tank testing.

All repairs to any ballast tanks required as a result of inspection and this tank testing shall be done so with the approval of the C.O.T.R., and shall be treated as an "extra" per the Indefinite Quantity clause of this contract.

NOTE: *Fresh water shall be used for testing, and any tank coatings, if applicable, shall be applied after testing is completed and approved.*

K. FUEL SYSTEM

Two fuel storage tanks, located in the wing tanks both port and starboard, shall contain approximately 823 gallons each of diesel fuel upon arrival at the shipyard. The contractor shall remove and dispose of this fuel.

The two fuel storage tanks and fuel lines shall be drained and flushed of all fuel oil sludge, residue, or other contaminants, cleaned, and tested to the satisfaction of the C.O.T.R.
The contractor shall provide approximately 1648 gallons (or equivalent quantity as measured) of fresh diesel fuel in each tank to replace that removed to provide barge power for ballasting and other needs as required.

L. BALLAST SYSTEM REPAIRS

The Government is not able to supply ballast system drawings. The contractor shall remove and replace the existing ballast piping aft of frame 14 and forward of frame 11. Ballast tank valves shall be replaced/repaired in accordance with Section H, Valve Replacement and Repairs.

The contractor shall remove and discard the two (2) existing ballast pump foundations.

The contractor shall furnish the material and fabricate two (2) new ballast pump foundations to replace the existing foundations. Reference drawing 90M01737-5.

The contractor shall position and install the two (2) new ballast pump foundations. Reference drawing 30A90884. At minimum, a single fillet weld shall be continuous all around the base of the foundation. Welding shall be per ABS requirements.

The contractor shall clean and preserve the two (2) new ballast pump foundations in accordance with the paint schedule (See SECTION III).

The contractor shall furnish and install ½ inch diameter drain, PVC pipe, and necessary fittings from each of the ballast pump foundations to the bilge system

sumps located forward of frame 14 near the centerline of the barge in the pump room. Routing shall be as determined by the C.O.T.R.
The contractor shall remove and discard existing ballast pump #1 (the in-board pump with the green housing) and replace the pump with a Government furnished replacement pump.

The contractor shall remove and discard all the existing couplers and furnish new replacements.

The contractor shall furnish materials and fabricate two (2) new bedplates for each of the two (2) ballast pump/ballast motor combinations. New steel shall be in accordance with ASTM-A36 or be of ABS quality. Welding shall be per ABS requirements.

The motor/pump combination information is as follows:

Pump: Goulds Pump Model 3755M, Size 3X4-11
Associated Manufacturer's Bedplate: No. 2

Motor: Motor Frame 215T
Associated Manufacturer's Bedplate: No. 1
Coupling: Woods 6S

Manufacturer's dimensional information on the above may be provided to the contractor upon request.

The contractor shall clean and preserve the two (2) new bedplates in accordance with the paint schedule (See SECTION III).

The contractor shall re-install the two (2) ballast pumps and two (2) ballast pump motors and bedplates to the new ballast pump foundations. The contractor shall furnish new bolting material to install the two (2) pumps and two (2) motors to each of the bedplates. The contractor shall also furnish and install new shims and bolting and jointing materials, as required, for bedplate installation onto each of the ballast pump foundations to allow for proper mounting and alignment with existing ballast piping. Match drill each bedplate to each ballast pump foundation once field verification of proper alignment has been achieved. The existing ballast piping shall not be strained to force alignment. Reference drawing 30A90884.

The contractor shall remove, furnish, and install a new simplex basket strainer in the inlet piping for each ballast pump. The two (2) new strainers shall be similar and equivalent to the existing strainers.

The contractor shall remove, furnish, and install new copper tubing, fittings, and necessary brackets from ballast pump casing suction and discharge pressure gauge connections up to the existing pressure gauges as directed by the C.O.T.R.

The contractor shall prove repaired ballast system operational to the satisfaction of the C.O.T.R.

NOTE: *The ballast system is located in the general vicinity of expected repairs to (or replacement of) the deck of the pump room (No. 2 Starboard Wing-Inner Bottom tank top).*

M. FIRE SYSTEM REPAIRS

The contractor shall remove and replace the two (2) existing fire pumps. Furnish and replace the two (2) fire pumps with ONE of the following options:

a) Replace each of the two (2) fire pumps with new pumps of the same configuration. The contractor shall furnish new couplings, galvanized steel coupling guards, bolting and jointing materials, as required. Mount and align to existing motor and fire system piping. The existing fire system piping shall not be strained to force alignment. The contractor shall clean and preserve the existing fire pump foundations and mounting plate per SECTION III requirements. See pump details below.

b) Rebuild each of the two (2) fire pumps, as necessary after examination, with new or reconditioned parts. Replace all bearings, seals, and soft goods regardless of condition. The contractor shall furnish new couplings, galvanized steel coupling guards, bolting and jointing materials, as required. Mount and align to existing motor and fire system piping. The existing fire system piping shall not be strained to force alignment. The contractor shall clean and preserve the existing fire pump foundations and mounting plate per SECTION III requirements. See pump details below.

c) Replace each of the two (2) fire pumps with equivalent pumps to match current size and performance requirements. The contractor shall furnish new couplings, galvanized steel coupling guards, bolting and jointing materials, as required. Mount and align to existing motor and fire system piping, if possible. New fire pumps shall be chosen to minimize fire system piping modifications and modifications to the existing mounting plates. Existing or modified fire system piping shall not be strained to force alignment. The contractor shall clean and preserve the existing fire pump foundations and mounting plate per SECTION III requirements. See pump details below.

Fire Pump Details: 120 GPM, TDH 180 feet
Goulds Pump Model 3196 ST
Size: 1" X 1 ½" X 8", ANSI Process Centrifugal
Impeller Size: 6 ¾" diameter, approximately
Materials: Casting ductile iron, ASTM A395
Impeller: Ductile iron, ASTM A536
Gland: AISI 316 Stainless Steel
Shaft: AISI 4140 Steel
Shaft Sleeve: AISI 316 Stainless Steel
Seal: Mechanical, John Crane type, 1BPICI

Motor: 15 HP, 3600 RPM, 3/60/460 VAC
1.0 service factor, TGFC, marine duty, 245T frame
50°C ambient, class F insulation

NOTE: *Inspections have revealed water leakage from Fire pump No. 2 (outboard pump) at an undetermined location.*

The contractor shall furnish and install ½ inch diameter drain, PVC pipe, and necessary fittings from each of the fire pump foundations to the bilge system sumps located forward of frame 14 near the centerline of the barge in the pump room. Routing will be as determined by the C.O.T.R.

The contractor shall remove, furnish, and install a new simplex basket strainer in the inlet piping for each fire pump. The two (2) new strainers shall be similar and equivalent to the existing strainers.

The repaired fire system shall be tested and proven in good working order to the satisfaction of the C.O.T.R.

N. SANITARY SYSTEM REPAIRS

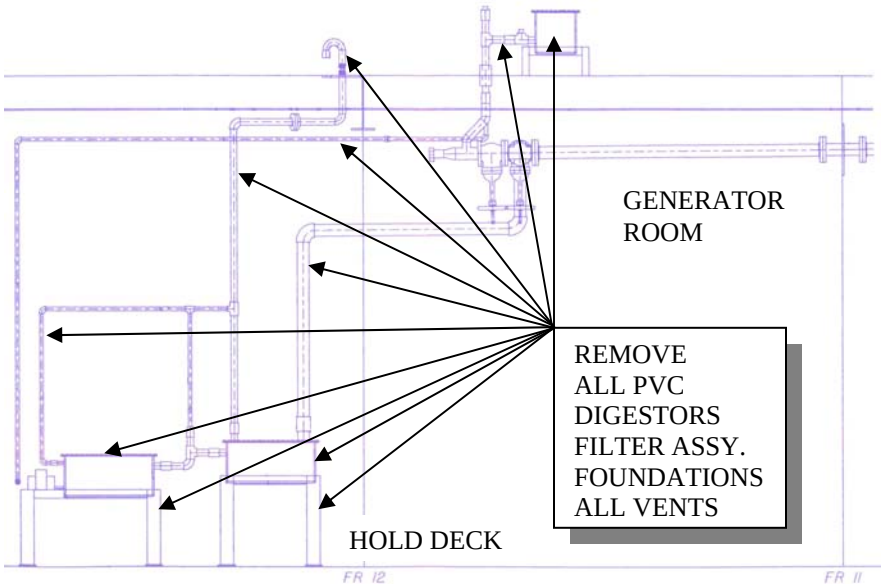
The contractor shall furnish the labor, materials, and equipment to remove the existing marine sanitation device (MSD) and associated system components and toilet and replace them. No drawings are provided. Construction and installation details shall be based on guiding information provided in this specification and approved to the satisfaction of the C.O.T.R. The contractor shall provide the following:

<u>Removal</u>

1. Remove and discard the two existing digestors and one existing filter assembly (located in the ladder room on the main deck).
2. Remove and discard all marine sanitation system associated PVC piping.

3. Remove and discard two existing digestor foundations from hold deck.
4. Overhaul the two existing 3"gate valves (overboard bypass and MSD inlet) per Part H of this Section, F/N's 32 and 33.
5. Remove (for larger diameter replacement) and discard existing 1 ½" steel vent piping, including exposed vent piping on main deck.
6. Remove and discard the existing toilet in the wash room.

See figure below.



Installation

Refer to Figures 2 and 3 at the end of SECTION II for installation guidance information.

1. Fabricate new MSD foundation. The foundation shall be constructed of new steel in accordance with ASTM-A36 or be of ABS quality. Welding shall be per ABS requirements. The foundation shall have raised edges and an appropriately sized and located drain. Minimum clearance underneath the foundation shall not be less than 12 inches. Detailed construction shall be determined by the contractor and approved by the C.O.T.R.
2. Locate and install the new MSD foundation as directed by the C.O.T.R. (in the same vicinity as the existing system). Apply fillet weld per ABS requirements all around each of the foundation legs at the hold deck. The foundation shall be level. Clean and preserve per SECTION III requirements.

3. Furnish and install the following MSD:

   Seahorse Manufacturing, L.L.C. Model 100
   Construction: Carbon Steel
   Outfit: 4" vent connection, 1 ½" discharge with pump
   Power: 110V, single phase

   Position on foundation in accordance with guidance from this specification and as approved by the C.O.T.R. Secure MSD to the foundation per manufacturer's recommendation with new bolting and securing material.
4. Install 3" Schedule 40 PVC for MSD inlet piping. Horizontal runs shall have 1/8" drop per one foot of linear length. Refer to manufacturer's recommendation for installation.
5. Install 1 ½" Schedule 40 PVC for MSD discharge piping. Provide proper connection to existing steel tee for MSD discharge into overboard piping. Refer to manufacturer's recommendation for installation.
6. Install new 4" Schedule 40 black iron vent piping per ASTM A53 to replace the 1 ½" main deck and through bulkhead vent piping previously removed. Above deck vent line construction shall be similar to existing vent line configurations. The vent line shall terminate with a tank air escape valve as follows, or equivalent:

   Robert H. Wager Co., Inc. 1660 Series, 4 inch
   Construction: 1020 Galvanized Steel, screw type

   Weld per manufacturer's recommendation and ABS requirements. Steel vent line construction shall penetrate into the generator room at the location of the previously removed vent line and provide proper end connection for 4" Schedule 40 PVC piping. Clean and preserve interior and exterior portions of the new steel vent piping per SECTION III requirements.
7. Install new 4" Schedule 40 PVC for MSD vent piping. Provide proper connection to new 4" steel vent line piping. Refer to manufacturer's recommendation for installation.
8. Install Schedule 40 PVC foundation drain line with hookup to foundation drain. Horizontal runs shall have 1/4" drop per one foot of linear length. Route (and appropriately secure) drain line to generator room sump, near frame 14, as directed by C.O.T.R.
9. Install new toilet. Existing plumbing at toilet shall be configured to appropriately interface with the new toilet. Electrical power shall also be provided via an appropriate outlet on the wash room circuit to in a location near the toilet. The toilet shall be wired with an appropriate power plug for the outlet. The contractor shall provide the following toilet for installation:

Company: Red Fox Environmental Services
Model: Model 1000
Power: 120 VAC

Prior to final MSD hookup and after sanitation system valve refurbishment, check new PVC, vent piping, and toilet for integrity (leakage). **Do not operate the completed system. Initial wetting and start-up shall be accomplished by the owner.**

O. ANCHOR WINDLASS

The contractor shall prove the anchor windlass and capstan located on the foc'sle deck in good working order. All exposed parts shall be cleaned and all rust removed, etc.

NOTE: *Inspections have revealed that first gear is non-functional. Suspect contact corrosion may need to be removed.*

The contractor shall clean and tune-up the brake drum surfaces, free-up, align, and re-install the brake band.

The contractor shall clean and preserve the anchor windlass and capstan in accordance with the paint schedule (See SECTION III).

All elements of the anchor windlass and capstan, after reassembly and finish painting, shall be properly lubricated, adjusted, and operated to the satisfaction of the C.O.T.R.

P. MISCELLANEOUS REPAIRS

1. RANGE OUT AND SERVICE TOWING BRIDLE

The contractor shall furnish the labor, materials, and equipment for the following:

a) Range out towing bridle for cleaning and painting
b) Remove corrosion from towing bridle per SECTION III requirements for SURFACE PREPARATION – EXTERIOR.
c) Towing chain links shall be examined for wear, waste, and stretch. Excessive waste shall be brought to the attention of the C.O.T.R. Inspect and overhaul all shackles, connecting links, etc. Visually inspect pad eyes for cracks.
d) Preserve towing bridle and associated connecting hardware per SECTION III requirements for PAINTING – EXTERIOR.

2. RANGE OUT ANCHOR AND ANCHOR CHAIN

The contractor shall furnish the labor, materials, and equipment for the following:

a) Range out anchor and anchor chain for cleaning and painting
b) Remove corrosion from anchor and anchor per SECTON III requirements for SURFACE PREPARATION – EXTERIOR.
c) Anchor chain links shall be examined for wear, waste, and stretch. Excessive waste shall be brought to the attention of the C.O.T.R. Inspect and overhaul all shackles, connecting links, etc.
d) Preserve anchor and anchor chain per SECTION III requirements for PAINTING – EXTERIOR.

3. RANGE OUT AND SERVICE EMERGENCY TOWING CABLE

The contractor shall furnish the labor, materials, and equipment for the following:

a) Range out emergency towing cable for cleaning and painting
b) Remove corrosion from towing bridle per SECTION III requirements for SURFACE PREPARATION – EXTERIOR.
c) Excessive waste shall be brought to the attention of the C.O.T.R. Inspect and overhaul all shackles, connecting links, etc. Remove and replace all storage hangers located every 16 ft along the starboard bulwark of the barge with similar design, construction, and attachment to the bulwark.
d) Clean and preserve emergency towing cable and storage hangers/bulwark per SECTON III requirements for PAINTING – EXTERIOR.

4. CARGO DECK "D" RING REPLACEMENT

The contractor shall furnish the labor, materials, and equipment for the following:

a) Remove all existing "D" rings (QTY: 101) and discard.
b) Install Government furnished replacement "D" rings. Location of new installation shall be as directed by the C.O.T.R. "D" ring description is as follows (existing or equivalent product may be supplied to the contractor):

EXISTING D-RINGS

Peck & Hale "D" ring: F198-1-1
Strap: F-198-2-3
Minimum Breaking Strength: 64 metric tons

c) Install by welding per manufacturer's recommendation. Welds should continue around both ends of each leg of the strap. Any "D" rings not installed shall be stored onboard the barge.
d) Clean and preserve D-rings per SECTION III requirements for PAINTING – EXTERIOR.

5. BALLAST TANK VENTS

The contractor shall furnish the labor, materials, and equipment for the following:

a) Remove vent screens and remove debris or other blockages from screens and vents.
b) Replace damaged or incomplete tank air escape valves with the following new valves, or equivalent:

Robert H. Wager Co., Inc. 1660 Series, 3 inch
Construction: 1020 Galvanized Steel, screw type

6. DECK DRAINS

The contractor shall furnish the labor, materials, and equipment for the following:

a) Replace House Top Deck drains, located near frame 12, in their entirety and replace with similar size and construction including necessary brackets to secure the piping to the superstructure and handrails. Drain is 4" diameter with approximately 10 feet of 3" steel drain piping.
b) At the completion of this work, the contractor shall test these and all remaining deck drains to insure all drain lines are clear, drain properly, and are watertight.

All repairs to the remaining deck drains and deck drain piping required as a result of this testing shall be done so with the approval of the C.O.T.R., and shall be shall be treated as an "extra" per the Indefinite Quantity clause of this contract.

7. MAIN DECK LIGHTING AND ELECTRICAL REPAIRS

The contractor shall furnish the labor, materials, and equipment for the following:

a) Reattach an electrical outlet to the starboard bulwark. Placement may be at or near original mounting location.

b) Reattach three (3) main deck light assemblies by removing the existing steel mounting plates (located under bulwark cap), welding in new steel plates, and reattaching the light assemblies with new bolting materials. The light assemblies to be repaired shall be those identified by the C.O.T.R.

8. PUMP ROOM

The contractor shall furnish the labor, materials, and equipment for the following:

a) Remove and replace two (2) sumps located near aft bulkhead, frame 14, near the starboard bulkhead and the centerline bulkhead. Sumps are 12 inches in diameter by 12 inches in depth, with 3/8 inch thick steel plate bottom.
b) Remove and replace manhole cover near aft bulkhead, frame 14 with new bolting and jointing materials. The new cover shall be of similar construction and materials.
c) Remove and replace suction piping extending into each sump to the extent of the next pipe fitting or valve. Replace the piping with similar dimensions and materials.

NOTE: *The sump and manhole are located in the general vicinity of expected repairs to (or replacement of) the deck of the pump room (No. 2 Starboard Wing-Inner Bottom tank top). Piping supports, raised flooring supports, and other associated hardware may require temporary removal or replacement as a result of these repairs. The sump and manhole cover replacement shall not occur until the contractor and C.O.T.R have determined the extent of repairs as specified in SECTION II, Part J of this specification.*

9. GENERATOR ROOM

The contractor shall furnish the labor, materials, and equipment for the following:

a) Remove and replace two (2) sumps located near aft bulkhead, frame 14, near the port bulkhead and the centerline bulkhead. Sumps are 12 inches in diameter by 12 inches in depth, with 3/8 inch thick steel plate bottom.

b) Remove and replace manhole cover near aft bulkhead, frame 14 with new bolting and jointing materials. The new cover shall be of similar construction and materials.
c) Remove and replace suction piping extending into each sump to the extent of the next pipe fitting or valve. Replace the piping with similar dimensions and materials.
d) Remove and replace/repair non-functional gauges on the switchboard.
e) General checkout of generator sets and switchboard.

NOTE: *The sump and manhole are located in the general vicinity of expected repairs to (or replacement of) the deck of the generator room (No. 2 Starboard Wing-Inner Bottom tank top). Piping supports, storage cabinets, raised flooring support, and other associated hardware may require temporary removal or replacement as a result of these repairs. The sump and manhole cover replacement shall not occur until the contractor and C.O.T.R have determined the extent of repairs as specified in SECTION II, Part J of this specification.*

10. POTABLE WATER SYSTEM

The contractor shall furnish the labor, materials, and equipment for the following:

a) Checkout potable water system piping for integrity and leakage.
b) Remove and replace/repair any section of piping or fiting which exhibits leakage. Charge system. Leakage indicated by fixtures, such as faucets, hot water heater, etc., shall not be repaired unless otherwise directed by the C.O.T.R. A supply of potable water by the contractor shall not be required after testing and repairs are completed.

NOTE: <u>Per Section N, Sanitary System Repairs,</u> <u>do not operate the completed marine sanitation device system. Initial wetting and start-up shall be accomplished by the owner</u>.

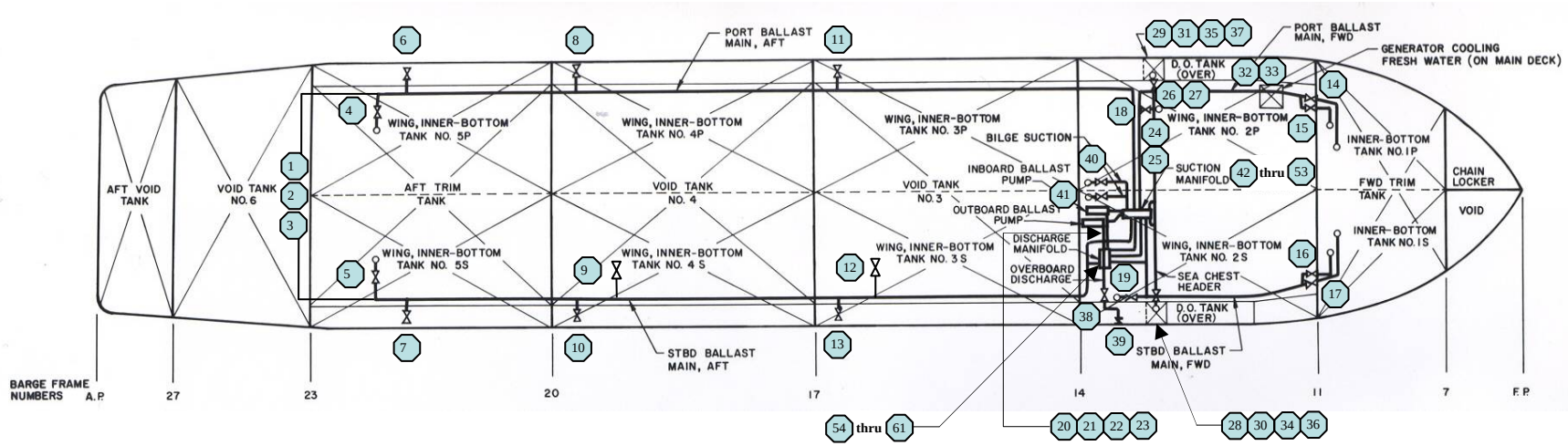


Figure 1. Referenced valve Find No. locations for SECTION II, Part H.

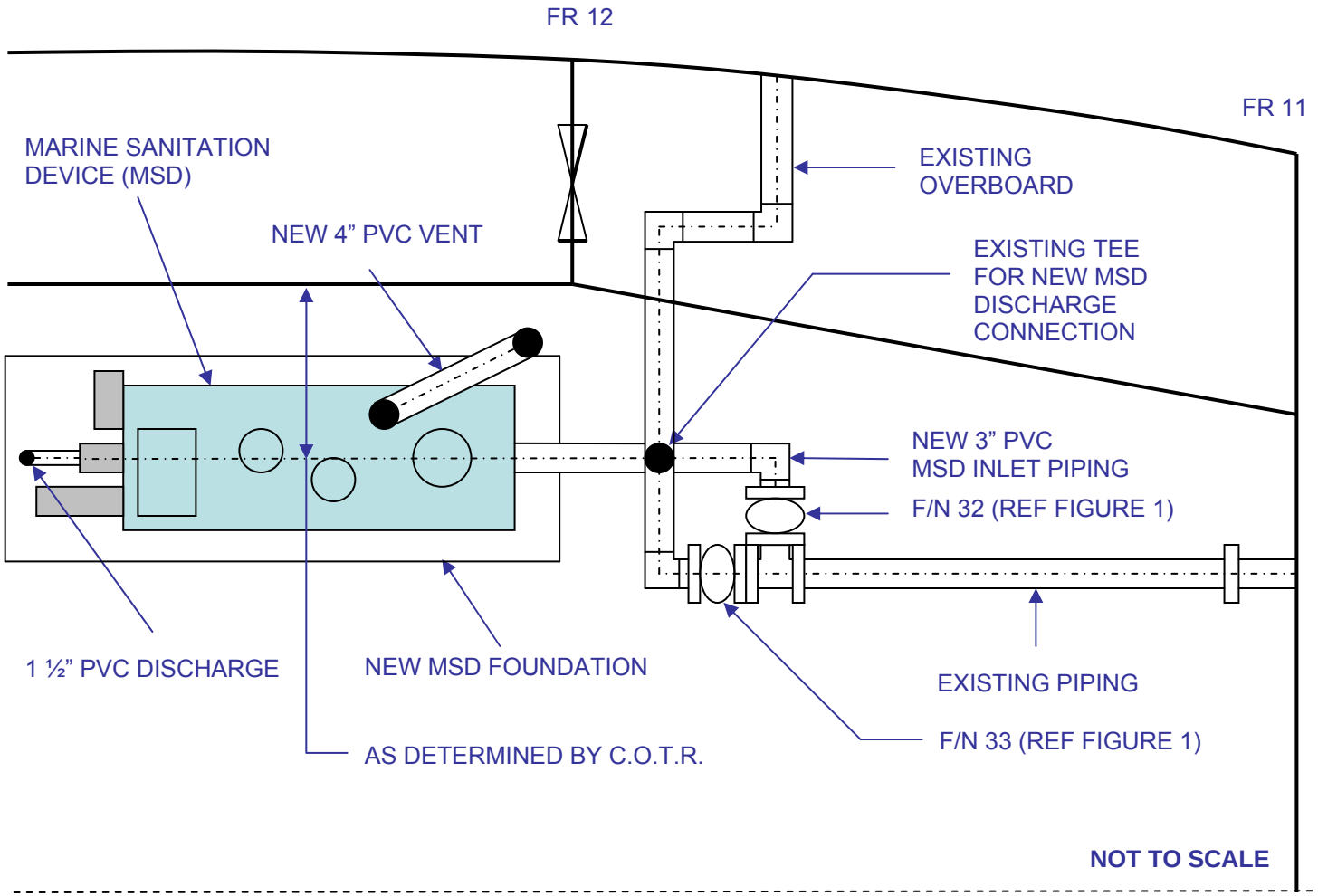


Figure 2. General overhead layout for installation of new marine sanitary system.

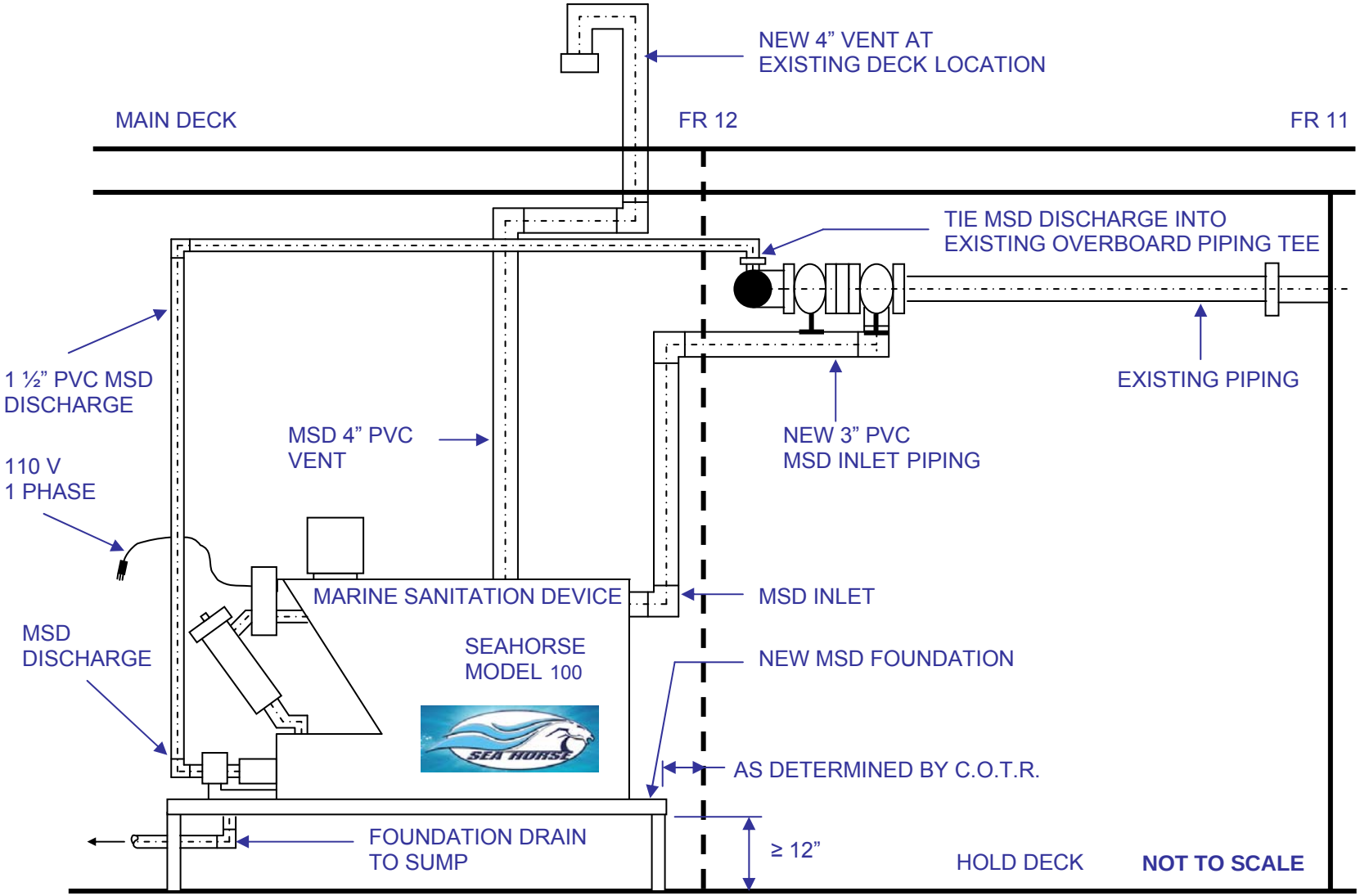


Figure 3. General layout for installation of marine sanitation device.

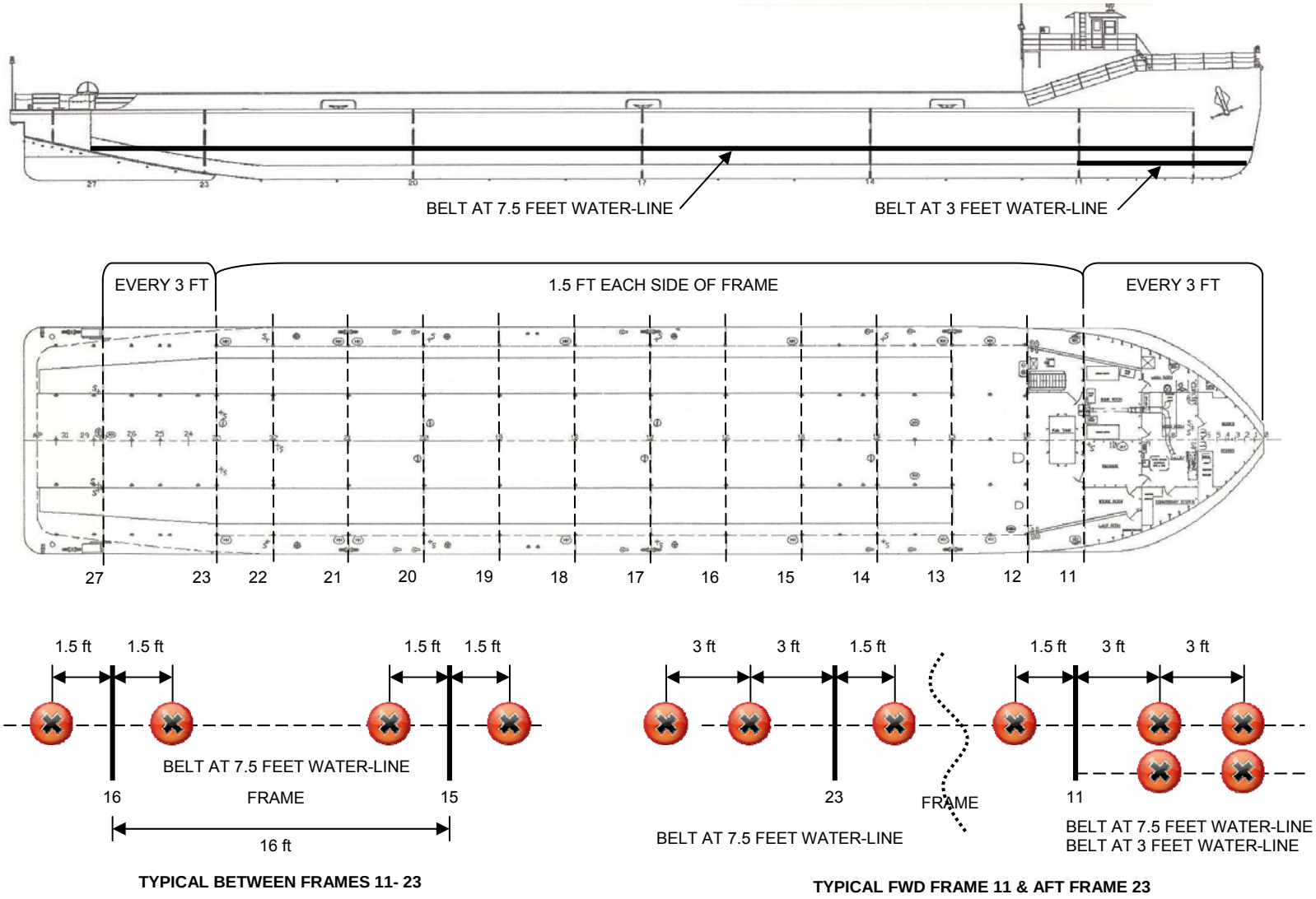


Figure 4. External hull ZONE 2 (side shell) audio gauge reading locations.

SECTION III CLEANING AND PAINTING

A. GENERAL

All paints shall be the best grade commercial marine products and/or in strict accordance with the Federal or Military specifications listed herein. Certain proprietary designations are given in this specification to readily establish the owner's type and grade desired. Deviations or determined equivalents shall not be used unless directed by the C.O.T.R..

All paints shall be delivered to the job in sealed containers plainly marked by the manufacturer, identifying type and grade of paint contained therein. The amount of paints required to complete the work specified herein shall be determined by the contractor.

Unless otherwise specified, paints must not be thinned with solvent or altered in any manner by the contractor.

Before the application of any coat, all bare spots in the preceding coat shall be thoroughly cleaned and re-painted.

Areas where paints have been damaged by welding shall be cleaned to the metal surface and re-painted to requirements.

No priming or painting shall be done on compartments or tanks required to be tested until completion of such tests, except final tank testing.

Where necessary, scuppers shall be temporarily sealed off and overboard drains plugged or led clear so that the hull will remain dry during the application of paint.

Paints shall be applied in strict accordance with the paint manufacturer's recommendations.

Unless otherwise specified, bulkhead mounted equipment shall be painted to match bulkheads.

Any equipment, furniture, or structures that have the coating scratched or damaged shall be touched up prior to delivery of the barge.

All pipe coverings exposed to view shall receive two coats of finish paint to match compartment finish.

Piping or pipe coverings, valves, or other items identified by stencil for type of service by shall be restored by stencil after final coat.

In general, all permanently installed cables external to equipment (cable hangers, wireways, straps, supports of equipment, kickpipes, stuffings and terminal tube exteriors – except threads and working surfaces, unfinished exposed bodies of lighting fixtures, fittings, and outlets) shall be finish painted to match surrounding structure.

All parts or spares not specifically covered by the general or detailed requirements herein shall be cleaned and painted to conform to the surroundings or to comparable spaces.

Metal to metal faying surfaces, except when formed by continuous or seal welding, shall receive two coats of primer on each faying surface prior to closure. Primers shall be specified for the metal concerned. When pretreatment coating is specified, it shall be considered as the first prime coat. Faying surfaces of dissimilar metals, if exposed to the weather, in addition shall be fitted with joint sealing material MIL-J-002829, Class 2, or 0.05 inch thickness, or equivalent.

All fixtures, electrical wiring, gauges, electric boxes, switches, deck coverings, equipment, label and name plates, cable tabs, warning plates, etc., shall be properly protected during surface preparation and painting operations. On completion of the work, all paint and other smudges shall be removed.

Prior to painting, all surfaces shall be free of foreign matter, such as dirt, oil, grease, salt deposits, crayon marks, weld scale, and weld splatter.

The contractor shall check all deck drains, interior and exterior, prior to the barge leaving the shipyard, to insure all drain lines are free of sand and miscellaneous debris. Proper draining shall be demonstrated.

Any coating products purchased and not applied after completion of all painting activities shall be returned to proper storage containers, clearly marked, and stored onboard the barge to be retained by the Government. Excessive amounts remaining after completion of all painting activities, due to contractor estimating errors, shall be returned to the manufacturer for a credit to the vessel owner, especially if excessive amounts remain in unopened containers as delivered from the manufacturer.

B. SURFACE PREPARATION – EXTERIOR

1. HULL (Keel to 9’ -0” Waterline – including Sea Chests)

Blast to a near white (SSPC-SP10/NACE 2). Surface shall be swept, vacuumed, or blown down with compressed air to remove all spent abrasive and debris.

2. HULL (9’ -0” Waterline to Deck Edge)

All broken down areas and new steel shall be blasted to a near white (SSPC-SP10/NACE 2). Commercial blast (SSPC-SP6/NACE 3) all remaining areas. Surface shall be swept, vacuumed, or blown down with compressed air to remove all spent abrasive and debris.

3. SUPERSTRUCTURE

The superstructure includes the following: handrails (pipe and chain), vents, bulwarks, overhead and bulkheads between frame 11 and frame 12, deck house, exhaust trunk, potable water tank, stanchions, ladders, and various brackets and piping.

All broken down areas and new steel shall be blasted to a near white (SSPC-SP10/NACE 2). Commercial blast (SSPC-SP6/NACE 3) all remaining areas. Surface shall be swept, vacuumed, or blown down with compressed air to remove all spent abrasive and debris.

4. DECKS (Main, Foc’sle, and House Top) AND RAMPS

All broken down areas and new deck steel shall be blasted to a near white (SSPC-SP10/NACE 2). Commercial blast (SSPC-SP6/NACE 3) all remaining areas. Commercial blast (SSPC-SP6/NACE 3) all new “D” rings. Surface shall be swept, vacuumed, or blown down with compressed air to remove all spent abrasive and debris.

5. MISCELLANEOUS EXTERIOR

a) Towing Bridle Chain (and fittings) and Emergency Towing Chain

All broken down areas shall be blasted to a near white (SSPC-SP10/NACE 2). Commercial blast (SSPC-SP6/NACE 3) all remaining areas. Chain and bridle shall be swept, vacuumed, or blown down with compressed air to remove all spent abrasive and debris.

b) Anchor and Anchor Chain

Blast to a near white (SSPC-SP10/NACE 2). Surface and chain shall be swept, vacuumed, or blown down with compressed air to remove all spent abrasive and debris.

c) Anchor Windlass and Capstan

All broken down areas and new deck steel shall be blasted to a near white (SSPC-SP10/NACE 2). Commercial blast (SSPC-SP6/NACE 3) all remaining areas. Surface shall be swept, vacuumed, or blown down with compressed air to remove all spent abrasive and debris.

C. SURFACE PREPARATION – INTERIOR

1. GENERAL

No surface preparation shall be required in galley and bunk room, except if specifically noted in this specification or as a result of damage by the contractor during the period of the shipyard work. If cleaning is required, all mill scale, heat scale, and rust shall be removed from surfaces of new steel prior to painting by blasting, power wire brushing, or scaling to bare metal.

2. CHAIN LOCKER AND FOREPEAK

Remove all loose scale, rust, blistering or loosely adhering paint, and other sediment by scaling and/or power wire brush as required. Any rusting or blistering areas shall be cleaned to bare metal.

3. STORES

These areas include the following rooms: Ladder room (including lube oil tank and excluding ladder) and passage. Lamp room, store room, bosn's stores, and commissary stores shall not be prepared. Preparation in these areas is not within the scope of this statement of work.

Before power tool cleaning, remove visible oil, grease, soluble welding residues and salts by the methods outlined in SSPC-SP1. Power tool clean (SSPC-SP3). Surface shall be swept, vacuumed, or blown down with compressed air to remove all spent abrasive and debris.

4. WASH ROOM

Before power tool cleaning, remove visible oil, grease, soluble welding residues and salts by the methods outlined in SSPC-SP1. Power tool clean (SSPC-SP3). Surface shall be swept, vacuumed, or blown down with compressed air to remove all spent abrasive and debris.

5. GENERATOR ROOM AND PUMP ROOM

These areas include the following: Tank top deck, bulkheads, overhead, raised platforms, stanchions, stairways, and piping.

Before power tool cleaning, remove visible oil, grease, soluble welding residues and salts by the methods outlined in SSPC-SP1. Power tool clean (SSPC-SP3). New steel and machinery foundations (fire pumps, ballast pumps, ballast pump bedplates, MSD foundation, and new steel vent piping) shall be blasted to a near white (SSPC-SP10/NACE 2). Surface shall be swept, vacuumed, or blown down with compressed air to remove all spent abrasive and debris.

6. INSULATION SURFACES IN INTERIOR SPACES

The contractor shall wipe down with clean, damp rags to remove dirt and dried debris.

7. POTABLE WATER TANK

Blast to a near white (SSPC-SP10/NACE 2). Surface shall be swept, vacuumed, or blown down with compressed air to remove all spent abrasive and debris.

8. FUEL TANKS

The tanks under consideration include the port and starboard bunker tanks.
The contractor shall clean and remove all sediment form the Fuel Oil Tanks as described in SECTION II, Part K.

9. VOIDS

The void spaces under consideration include the following:

a) No. 3 Center Void
b) No. 4 Center Void
c) No. 6 Center Void
d) No. 6 Inner-bottom Void P/S
e) No. 7 Aft Void Space

Water blast and scrape down, as necessary, all loose scale, rust, blistering, loosely adhering paint, and other sediment. All new steel shall be blasted to a near white (SSPC-SP10/NACE 2). Surface shall be swept, vacuumed, or blown down with compressed air to remove all spent abrasive and debris. Remove all debris and standing water from the void spaces.

NOTE: *The void spaces have been previously coated with Magnakote.*

10. BALLAST TANKS

The ballast tanks under consideration include the following:

a) Forward Trim Tank, Center
b) No. 1 Inner-bottom Tank, P/S
c) No. 2 Wing/Inner-bottom Tank, P/S
d) No. 3 Wing/Inner-bottom Tank, P/S
e) No. 4 Wing/Inner-bottom Tank, P/S
f) No. 5 Wing/Inner-bottom Tank, P/S
g) No. 5 Aft Trim Tank, Center

NOTE: *The ballast tanks have been previously coated with Magnakote (inner-bottom tanks) and Eureka Fluid Film A (fwd and aft trim tanks).*

Water blast and scrape down, as necessary, all loose scale, rust, blistering, loosely adhering paint, and other sediment. All new steel shall be blasted to a near white (SSPC-SP10/NACE 2). Surface shall be swept, vacuumed, or blown down with compressed air to remove all spent abrasive and debris. Remove all debris and standing water from the void spaces.

D. PAINTING – EXTERIOR

NOTE: *All coats are full and complete coats unless otherwise specified. "t/u" denotes "touch up" coat.*

1. HULL (Keel to 9' -0" Waterline – including Sea Chests)

COAT	PRODUCT	DESCRIPTION	MIN THICKNESS (MDFT)	COLOR
1	Sherwin Williams SEAGUARD 5000 N11-200/N11V200	Epoxy Primer	5.0	Red
2	Sherwin Williams SEAGUARD 5000 N11-200/N11V200	Epoxy Primer	5.0	Gray
3	Sherwin Williams SEAGUARD Ablative Antifouling P30BQ12	Hi-Solids Anti-Foulant	5.0	Black
4	Sherwin Williams SEAGUARD Ablative Antifouling P30RQ10	Hi-Solids Anti-Foulant	5.0	Red

2. HULL (9' -0" Waterline to Deck Edge)

COAT	PRODUCT	DESCRIPTION	MIN THICKNESS (MDFT)	COLOR
t/u bare metal	Sherwin Williams Fast Clad Zinc HS B69A352/B69V352	Zinc Primer	3.0	Gray-Green
2	Sherwin Williams SEAGUARD 5000 N11-300/N11V300	Epoxy	5.0	Gray
3	Sherwin Williams SHERTHANE 2K Urethane B65-150/B65V150	Topcoat	3.0	Gray

Name, draft marks, and frame numbers shall be highlighted as follows:

COAT	PRODUCT	DESCRIPTION	MIN THICKNESS (MDFT)	COLOR
1	Sherwin Williams 5400 HS Alkyd B54Z-400 Series	Topcoat	2.0	White
2	Sherwin Williams 5400 HS Alkyd B54Z-400 Series	Topcoat	2.0	White

3. SUPERSTRUCTURE

The superstructure includes the following: handrails (pipe and chain), vents/covers, bulwarks, overhead and bulkheads between frame 11 and frame 12, deck house, exhaust trunk, potable water tank, stanchions, ladders, and various brackets and piping (drain and vent).

COAT	PRODUCT	DESCRIPTION	MIN THICKNESS (MDFT)	COLOR
New metal and t/u bare metal	Sherwin Williams Fast Clad Zinc HS B69A352/B69V352	Zinc Primer	3.0	Gray-Green
2	Sherwin Williams SEAGUARD 5000 N11-300/N11V300	Epoxy	5.0	Gray
3	Sherwin Williams SHERTHANE 2K Urethane B65-150/B65V150	Topcoat	3.0	White

4. DECKS (Main, Foc'sle, and House Top) AND RAMPS

a) Deck surfaces

Deck surface is to include the floor of the passage (between frame 9 and frame 11).

COAT	PRODUCT	DESCRIPTION	MIN THICKNESS (MDFT)	COLOR
1	Sherwin Williams Fast Clad Zinc HS B69A352/B69V352	Zinc Primer	3.0	Gray/Green
2	Sherwin Williams Sher-glass FF* B62-525/B62V525	Reinforced Epoxy (Add aggregate for non-slip finish)	12.0	Haze Gray
3	Sherwin Williams SHERTHANE 2K Urethane B65-150/B65V150	Topcoat	4.0	Light Gray

b) Deck machinery, bitts, chocks, cleats, raised hatches/covers, anchor windlass, and capstan

COAT	PRODUCT	DESCRIPTION	MIN THICKNESS (MDFT)	COLOR
New metal and t/u bare metal	Sherwin Williams Fast Clad Zinc HS B69A352/B69V352	Zinc Primer	3.0	Gray-Green
2	Sherwin Williams SEAGUARD 5000 N11-300/N11V300	Epoxy	5.0	Gray
3	Sherwin Williams 5400 HS Alkyd B54Z-400 Series	Topcoat	3.0	Safety Red

c) "D" rings

COAT	PRODUCT	DESCRIPTION	MIN THICKNESS (MDFT)	COLOR
1	Sherwin Williams Fast Clad Zinc HS B69A352/B69V352	Zinc Primer	3.0	Gray-Green
2	Sherwin Williams SEAGUARD 5000 N11-300/N11V300	Epoxy	5.0	Gray
3	Sherwin Williams 5400 HS Alkyd B54Z-400 Series	Topcoat	3.0	Safety Yellow

5. MISCELLANEOUS EXTERIOR

Miscellaneous exterior items include Anchor, Towing Bridle Chain (and fittings), Emergency Towing Chain, Anchor Chain

COAT	PRODUCT	DESCRIPTION	MIN THICKNESS (MDFT)	COLOR
1	Sherwin Williams SEAGUARD 5000 HS N11B350/N11V350	Epoxy	4.0	Black
2	Sherwin Williams SEAGUARD 5000 HS N11B350/N11V350	Topcoat	4.0	Black
3a – see note below	Sherwin Williams 5400 HS Alkyd B54Z-400 Series	Marking Topcoat	3.0	Safety Red
3b – see note below	Sherwin Williams 5400 HS Alkyd B54Z-400 Series	Marking Topcoat	3.0	Safety Yellow
3c – see note below	Sherwin Williams 5400 HS Alkyd B54Z-400 Series	Marking Topcoat	3.0	White

a. The last 15 fathom shot of anchor chain shall receive an additional red topcoat.

b. The 15 fathom shot of anchor chain adjoining the last 15 fathom shot shall receive and additional yellow topcoat.

c. One (1) link either side of the 15 fathom detachable link of the anchor chain shall receive an additional white topcoat. Two (2) links on either side of the 30 fathom detachable link shall receive an additional white topcoat. Three (3) links either side of the 45 fathom detachable link shall receive an additional white topcoat.

   NOTE: In addition, the anchor chain shall be marked by turns of wire on the studs of certain links, the number on links, counting away from the detachable link, being used as a marker for the shot, as follows:

   i. The first link at each side of the 15 fathom detachable link shall have one (1) turn of wire around the stud.
   ii. The second link at each side of the 30 fathom detachable link shall have two (2) turns of wire around the stud.
   iii. The third link at each side of the 45 fathom detachable link shall have three (3) turns of wire around the stud, and repeat.

E. PAINTING – INTERIOR

1. GENERAL

No painting will be required in galley, except if specifically noted in this specification or as a result of damage by the contractor during the period of the shipyard work. If painting is required, the C.O.T.R. will provide paint specifications to the contractor.

2. CHAIN LOCKER AND FOREPEAK

a. Chain Locker

COAT	PRODUCT	DESCRIPTION	MIN THICKNESS (MDFT)	COLOR
1 - t/u bare metal	Sherwin Williams SEAGUARD 5000 HS N11B350/N11V350	Epoxy	6.0	Black
2 - t/u	Sherwin Williams SEAGUARD 5000 HS N11B350/N11V350	Topcoat	6.0	Black

b. Forepeak

COAT	PRODUCT	DESCRIPTION	MIN THICKNESS (MDFT)	COLOR
1 - t/u bare metal	Sherwin Williams SEAGUARD 5000 HS N11B350/N11V350	Epoxy	6.0	Black
2 - t/u	Sherwin Williams SEAGUARD 5000 HS N11B350/N11V350	Topcoat	6.0	Oxide Red

3. STORES

These areas include the following rooms: Ladder room (including lube oil tank and excluding ladder), and passage. Lamp room, store room, bosn's stores, and commissary stores are not part of the scope of this statement of work. Painting is not required in these areas.

COAT	PRODUCT	DESCRIPTION	MIN THICKNESS (MDFT)	COLOR
1 - t/u bare metal	Sherwin Williams Fast Clad Zinc HS B69A352/B69V352	Zinc Primer	3.0	Gray-Green
2	Sherwin Williams SEAGUARD 5000 N11-300/N11V300	Epoxy	5.0	Gray
3a – see note below	Sherwin Williams SHERTHANE 2K Urethane B65-150/B65V150	Bulkhead Topcoat	3.0	White
3b – see note below	Sherwin Williams SHERTHANE 2K Urethane B65-150/B65V150	Deck Topcoat (Add aggregate for non-slip finish)	4.0	Green

a. The white bulkhead topcoat also applies to piping above the raised flooring, stanchions, shelving, etc…

b. Decks shall receive a green topcoat with non-slip aggregate added per manufacturer's recommendations.

4. WASH ROOM

COAT	PRODUCT	DESCRIPTION	MIN THICKNESS (MDFT)	COLOR
1 - t/u bare metal	Sherwin Williams Fast Clad Zinc HS B69A352/B69V352	Zinc Primer	3.0	Gray-Green
2	Sherwin Williams SEAGUARD 5000 N11-300/N11V300	Epoxy	5.0	Gray
3a – see note below	Sherwin Williams SHERTHANE 2K Urethane B65-150/B65V150	Bulkhead Topcoat	3.0	White
3b – see note below	Sherwin Williams SHERTHANE 2K Urethane B65-150/B65V150	Deck Topcoat (Add aggregate for non-slip finish)	4.0	Red

a. The white bulkhead topcoat also applies to piping above the raised flooring, stanchions, shelving, etc…
b. Decks shall receive a red topcoat with non-slip aggregate added per manufacturer's recommendations.

5. GENERATOR ROOM AND PUMP ROOM

COAT	PRODUCT	DESCRIPTION	MIN THICKNESS (MDFT)	COLOR
1 –New metal and t/u bare metal	Sherwin Williams Fast Clad Zinc HS B69A352/B69V352	Zinc Primer	3.0	Gray-Green
2	Sherwin Williams SEAGUARD 5000 N11-300/N11V300	Epoxy	5.0	Gray
3a – see note below	Sherwin Williams SHERTHANE 2K Urethane B65-150/B65V150	Topcoat	3.0	White
3b – see note below	Sherwin Williams SHERTHANE 2K Urethane B65-150/B65V150	Deck Topcoat (Add aggregate to make non-slip)	4.0	Red
3c – see note below	Sherwin Williams SHERTHANE 2K Urethane B65-150/B65V150	Raised Flooring Topcoat	4.0	Green

a. The white topcoat also applies to ballast and vent piping above the raised flooring, suction and discharge manifolds, and manifold foundations above the raised flooring.

b. Decks, machinery foundations, ballast pump bedplates, and raised flooring foundations shall receive a red topcoat. Deck surface red topcoat shall have aggregate added per manufacturer's recommendations to make non-slip. This red topcoat shall extend up bulkheads to 7 ½ inches above the deck (matching the current band), forming a band around each the generator and pump rooms.

c. The raised flooring panels in the pump room shall receive a green topcoat.

6. POTABLE WATER TANK

COAT	PRODUCT	DESCRIPTION	MIN THICKNESS (MDFT)	COLOR
1	Sherwin Williams Macropoxy 646 NSF (B58LX600)	NSF Epoxy	5.0	Light Blue
2	Sherwin Williams Macropoxy 646 NSF (B58WX610)	NSF Epoxy Topcoat	5.0	Sanitary White

NOTE: *Apply hand brushed stripe coat to all welds, corners, appendages, ladders, irregular, and hard to coat surfaces using Macropoxy NSF epoxy (white) between 1st and 2nd coats.*

7. VOIDS

The following void areas for protection include the following:

a) No. 3 Center Void
b) No. 4 Center Void
c) No. 6 Center Void
d) No. 6 Inner-bottom Void P/S
e) No. 7 Aft Void Space

COAT	PRODUCT	DESCRIPTION	MIN THICKNESS (MDFT)	COLOR
1	Ashland, Inc. Magnakote	Anti-corrosion coating	Per manufacturer's recommendation	N/A

All voids shall be coated by spray application (or floating if conditions more favorable). Follow manufacturer's recommendations on application, procedures, coverage, thicknesses, etc.

8. BALLAST TANKS

The ballast tanks under consideration for the following treatment include:

a) No. 1 Inner-bottom Tank, P/S
b) No. 2 Wing/Inner-bottom Tank, P/S
c) No. 3 Wing/Inner-bottom Tank, P/S
d) No. 4 Wing/Inner-bottom Tank, P/S
e) No. 5 Wing/Inner-bottom Tank, P/S

COAT	PRODUCT	DESCRIPTION	MIN THICKNESS (MDFT)	COLOR
1	Ashland, Inc. Magnakote	Anti-corrosion coating	Per manufacturer's recommendation	N/A

All considered tanks shall be coated by spray application (or floating if conditions more favorable). Follow manufacturer's recommendations on application, procedures, coverage, thicknesses, etc.

The ballast tanks under consideration for the following treatment include:

a) Forward Trim Tank, Center
b) No. 5 Aft Trim Tank, Center

COAT	PRODUCT	DESCRIPTION	MIN THICKNESS (MDFT)	COLOR
1	Eureka Chemical Co Fluid Film Liquid AR	Anti-corrosion coating	Per manufacturer's recommendation	N/A

All considered tanks shall be coated by spray application (or floating if conditions more favorable). Follow manufacturer's recommendations on application, procedures, coverage, thicknesses, etc.